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10/685,922	10/14/2003	Jacqueline E. Heard	MBI-0049 CIP	8769

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EXAMINER
SCHLAPKOHL, WALTER

ART UNIT	PAPER NUMBER
1636	

DATE MAILED: 02/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/685,922	HEARD ET AL.
	Examiner	**Art Unit**
	Walter Schlapkohl	1636

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 17 November 2005.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 29-48 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 29-48 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3/17/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Receipt is acknowledged of the papers filed 11/17/2005 in which claims 1-28 were canceled and claims 29-48 were added. Claims 28-48 are pending in the instant application.

Election/Restrictions

Applicant's election of Group II in the reply filed on 11/17/2005 is acknowledged. Because Applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

The restriction is still deemed proper and is therefore made FINAL.

Priority

The instant application claims priority, as CIP to application nos. 09/810,836; 10/412,699; 09/394,519; 09/533,392; 09/713,994; 10/225,066; 10/171,468; 09/934,455; and 10/225,068. While many of these applications disclose polypeptide sequences comprising instantly disclosed SEQ ID NO: 64 or a sequence homologous to SEQ ID NO: 64, the sub-domain consisting of SEQ ID NO: 64 or any homologs thereof was not disclosed. Neither do any of the priority applications provide support for the functional significance of SEQ ID NO: 64 as disclosed in the instant application. That is, none of the priority applications disclose a transgenic plant that has greater tolerance to at least one abiotic stress than a wild-type plant of the same species, wherein the transgenic plant comprises a nucleotide sequence encoding a polypeptide comprising a conserved domain with at least 71% sequence identity to SEQ ID NO: 64. Therefore, claims which read on such a transgenic plant expressing a polypeptide comprising a conserved DML motif with at least 71% identity to SEQ ID NO: 64 are granted priority only to the date of filing of the instant application.

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claim previously presented (whether entered or not).

Misnumbered claims 21-40 have been renumbered 29-48, see attachment. The claims as originally filed were numbered 1-28, not 1-20 as asserted in the amendment filed with the papers filed 11/17/2005. Any amendment to the claims must be made using the correct claim numbers. Failure to correctly number the claims in response to this Office Action will be held as non-responsive.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 29-48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are drawn to transgenic plants comprising a nucleotide sequence encoding a polypeptide comprising a conserved domain with at least 71% sequence identity to SEQ ID NO: 64 wherein the polypeptide is expressed in the plant and the plant has greater tolerance to either cold, drought, salt or sucrose than a wild-type plant of the same species. The claims encompass any transgenic plant comprising any polynucleotide that encodes a polypeptide comprising a conserved domain of 22 residues (SEQ ID NO: 64) or such a domain with at least 71% sequence identity to SEQ ID NO: 64. The claims do not provide any structural information with regard to the conserved polypeptide domain sequences capable of conferring increased tolerance to the abiotic stresses listed in the claims. Thus, the rejected claims comprise a set of transgenic plants (and seeds derived from such plants) comprising nucleic acid and polypeptide sequences that are defined by the function of the encoded protein.

To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of a complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, and any combination thereof. The specification describes four transgenic *Arabidopsis thaliana* plants, each of which expresses a different gene encoding a polypeptide comprising a conserved domain with at least 71% sequence identity to SEQ ID NO: 64 under the control of the 35S promoter. The specification describes these transgenic plants as having increased seedling vigor observed in germination assays on both high salt and media containing high sugar. The specification also describes these transgenic plants as having increased tolerance to cold germination conditions (8°C for 6 h) or chilling conditions (4°-8°C for 6 h). The specification further describes other genes comprising conserved domains with at least 71% sequence identity to SEQ ID NO: 64, but no description is provided of any other transgenic plants that have greater tolerance to cold, drought, salt or sucrose comprising such polynucleotides encoding polypeptides comprising a conserved domain with at least 71% identity to SEQ ID NO: 64. The specification does not describe any structural characteristics other than homology to SEQ ID NO: 64 which are important for conferring tolerance to abiotic stress. Neither does the specification describe which residues within SEQ ID NO: 64 are important for conferring abiotic stress resistance.

Even if one accepts that the examples described in the specification meet the claim limitations of the rejected claims with regard to structure and function, the examples are only representative of four nucleic acid sequences comprising a conserved domain with at least 71% sequence identity to SEQ ID

NO: 64 that, when expressed in a transgenic plant, result in the transgenic plant's greater tolerance to cold, drought, salt or sucrose than a wild-type plant of the same species. The results are not necessarily predictive of any other sequences capable of conferring abiotic resistance. Nor are the results necessarily predictive of the disclosed polynucleotide's ability to confer such tolerance to plants other than *A. thaliana*. Thus it is impossible to extrapolate from the examples described herein those nucleic acid/polypeptide molecules that would necessarily meet the structural/functional characteristics of the rejected claims.

The prior art does not appear to offset the deficiencies of the instant specification in that it does not describe a set of genes encoding proteins comprising a conserved domain with 71% sequence identity to SEQ ID NO: 64 such that when expressed in a plant, the plant exhibits greater tolerance to cold, drought, salt or sucrose than a wild-type plant of the same species. Harper et al (US Patent Application Pub. 2002-0160378 A1) teach a nucleotide sequence encoding a polypeptide comprising a conserved domain with 100% identity to SEQ ID NO: 64 in a transgenic plant, but Harper et al does not teach the instantly disclosed conserved domain nor any other proteins comprising such a domain such that their expression in a transgenic plant would result in a plant with increased tolerance to drought, cold, salt or sucrose.

Given the very large genus of nucleic acid molecules encompassed by the rejected claims, and given the limited description provided by the prior art and specification with regard to the sequences capable of fulfilling the claim limitations of claims 29-48, the skilled artisan would not have been able to describe the broadly claimed genus of transgenic plants with greater tolerance to cold, drought, salt and sucrose comprising a nucleotide sequence encoding a polypeptide comprising a conserved domain with at least 71% sequence identity to SEQ ID NO: 64. Thus, there is no structural/functional basis provided by the prior art or instant specification for one of skill in the art to envision those nucleic acid/polypeptide sequences that satisfy the functional limitations of the claims. Therefore, the skilled artisan would have reasonably concluded Applicant was not in possession of the claimed invention for claims 29-48.

Claims 29-48 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for transgenic plants with greater tolerance to cold, drought, salt or sucrose expressing G867 (RAV1), G9 (RAP2.8), G993 (F2J7.3) and G1930 (K13N2) and seeds therefrom, does not reasonably provide enablement for such transgenic plants expressing any other polynucleotide encoding for a polypeptide comprising a conserved domain with at least 71% sequence identity to SEQ ID NO: 64. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The claimed invention is not supported by an enabling disclosure taking into account the Wands factors (*In re Wands*, 858/F.2d 731, 8 USPQ2d 1400 (fed. Cir. 1988)). *In re Wands* lists a number of factors for determining whether or not undue experimentation would be required by one skilled in the art to make and/or use the invention. These factors are the quantity of experimentation necessary, the amount of direction or guidance provided by the specification, the presence of absence of working examples of the invention, the nature of the invention, the state of the prior art, the relative skill of those in the art and the predictability or unpredictability of the art and the breadth of the claims. All of the Wands factors have been considered with regard to the instant claims, with the most relevant factors discussed below.

Nature of the invention: The claims are drawn to a transgenic plant with increased tolerance to an abiotic stress, wherein the transgenic plant expresses a polynucleotide encoding a polypeptide having a conserved domain that has at least 71% sequence identity to SEQ ID NO: 64. The invention is further drawn to such a plant wherein the polynucleotide comprises a constitutive, inducible or tissue-specific promoter. The invention is further drawn to seeds produced by such a transgenic plant. Applicant's invention is also drawn to such a plant wherein the transgenic plant is more tolerant to cold (germination at 4°-8°C for 6 h or a six hour exposure to 4°-8°C during seeding growth), to salt (germination in a medium comprising 80% Murashige-Skoog medium and 150 mM NaCl), to sucrose (germination in a medium comprising 80% Murashige-Skood medium and 9.4% sucrose) and to drought. Thus, the nature of the invention is complex in that it requires that the transgenic plant express a polynucleotide encoding for any polypeptide such that the polypeptide comprises a conserved domain with at least 71% sequence identity to the 22 amino acid SEQ ID NO: 64, which Applicant discloses as the DML motif, such that the transgenic plant has greater tolerance for the recited abiotic stresses.

Breadth of the claims: The claims are extremely broad in that they encompass a transgenic plant which expresses any polypeptide that comprises the conserved domain of SEQ ID NO: 64 or a domain with 71% sequence identity to SEQ ID NO: 64 such that the transgenic plant has greater tolerance to cold, drought, salt or sucrose than a wild-type plant of the same species. The polynucleotide encoding the polypeptide can be operably linked to any constitute, tissue-specific or inducible promoter. The transgenic plant can be of any genus or species.

Guidance provided by the specification: Applicant discloses 4 polynucleotides encoding polypeptides having AP2 and B3 domains, as well as a newly discovered and highly conserved subsequence, referred to as the DML motif, i.e. SEQ ID NO: 64 (see instant specification, page 7, lines 1-10). The four polynucleotides (SEQ ID NO: 1, G867; SEQ ID NO: 3, G9; SEQ ID NO: 5, G993; and SEQ ID NO: 7, G1930) are all from *Arabidopsis thaliana* and encode proteins comprising a conserved domain with 100% (G867), 81% (G9 and G993) and 90% (G1930) identity to SEQ ID NO: 64. Applicant further discloses that these polynucleotides, as well as others, were identified by BLASTP analysis as having a high degree of sequence relatedness to G867 (page 33, lines 1-5). Additional sequences identified through the DML motif all were found within a previously-identified G867 clade and a resulting new set of orthologs, each comprising either a conserved AP2 domain before the DML motif, a B3 domain after the DML motif, or both, was compiled and listed in Table 2 (pages 33-34). While each of the 35 sequences identified comprise a conserved domain with at least 71% identity to SEQ ID NO: 65, no information is provided on whether or not any of the sequences on Table 2 outside of SEQ ID NOs: 1, 3, 5 and 7 encode for a polypeptide capable of rendering a transgenic plant more tolerant to drought, cold, salt or sucrose than a wild-type plant of the same species.

Applicant's specification is limited to only four working examples of such a transgenic plant. Applicant discloses transgenic *A. thaliana* plants expressing either full length G867, G9, G993 and G1930 under the control of the 35S promoter. Applicant discloses that these particular working examples demonstrate increased seedling vigor in germination assays on both high salt (150 mM NaCl) and media containing high sugar (9.4% sucrose). In addition, these transgenic plants are more tolerant to chilling (4°-8°C for 6 h) and to cold germination (4°-8°C for 6 h). Only the transgenic plant expressing G867 is disclosed as more tolerant to drought. Although the claims are drawn to the conserved DML motif present in each of the working examples, it has not been disclosed that any polypeptide comprising the DML motif of SEQ ID NO: 64, much less any member of the newly identified ortholog set of Table 2 comprising a DML motif, will also produce the desired results when transformed into a plant.

State of the art: Kagaya et al (Nucleic Acids Research 27(2):470-478, 1999; IDS Ref. No. 7) teach two polynucleotides encoding novel DNA binding proteins designated RAV1 and RAV2 (see entire document). Kagaya et al teach that RAV1 and RAV2 contain two distinct DNA-binding domains uniquely found in higher plants: an AP2 domain and a B3 domain (page 472, Figure 1 and last paragraph). Kagaya et al further teach that these two proteins are "the first examples of [the] higher plant proteins containing two distinct DNA-binding domains" (page 478, first paragraph). Kagaya et al do not teach that RAV1 and RAV2 each comprise a conserved DML motif with at least 71% identity to SEQ ID NO: 64 because such a motif was not known in the art. Furthermore, it appears that these novel proteins are the first two examples of any protein known to comprise a DML motif with 71% identity to SEQ ID NO: 64. Indeed, the DML motif disclosed by Applicant is based upon the fragment of RAV1 consisting of amino acid residues 135-152.

Predictability of the art: The state of the art is such that one of skill in the art cannot predict which nucleic acids that encode polypeptides comprising a conserved domain with 71%--or even 100%--identity to SEQ ID NO:64 such that when expressed in a transgenic plant, the plant will have increased tolerance to cold, drought, salt or sucrose. The DML motif has been identified on the basis of homology and has no known function or structure. Even if the structure of the DML motif of SEQ ID NO: 64 were known, the prediction of protein structure from sequence data and, in turn, utilizing predicted structural determinations to ascertain functional aspects of the protein, is extremely complex. For example, even in situations where the fold structure of a representative protein from an established protein family is in hand, the alignments (and hence the 3-D models can be of very poor quality (Jones, D.T., Pharmacogenomics J. 1(2):126-134, 2001, see especially page 133, bottom). Furthermore, proteins may be sensitive to alterations in even a single amino acid sequence. For example, the replacement of a glycine residue located within the START domain of either the PHABULOSA or PHAVOLUTA protein receptor with either an alanine or aspartic acid residue, alters that sterol/lipid binding domain (McConnell et al, Nature 411(6838):709-713, 2001, see especially page 710, left column, second paragraph).

Amount of experimentation required: In the absence of guidance from the specification and the prior art, undue trial and error experimentation would be required for one of ordinary skill in the art to screen through the multitude of non-exemplified sequences, either by using non-disclosed fragments comprising SEQ ID NO: 64 and variants with 71% sequence identity to SEQ ID NO: 64 as probes or by designing primers to undisclosed regions of polynucleotides encoding a polypeptide comprising a conserved domain with 71% identity to SEQ ID NO: 64 and isolating or amplifying fragments, subcloning the fragments, producing expression vectors and transforming plants therewith, in order to identify those, if any, that when over-expressed produce a plant with the desired phenotype and wherein the polypeptide comprises a conserved domain with at least 71% sequence identity to SEQ ID NO: 64.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United

> States and was published under Article 21(2) of such treaty in the English language.

Claims 29-40 are rejected under 35 U.S.C. 102(a & e) as being anticipated by Harper et al (US Patent Application Pub. 2002-0160378 A1).

Applicant's invention is drawn to a transgenic plant that has greater tolerance to at least one abiotic stress than a wild-type plant of the same species, wherein the transgenic plant comprises a polynucleotide comprising a nucleotide sequence encoding a polypeptide comprising a conserved domain with at least 71% sequence identity to SEQ ID NO: 64 and wherein the polypeptide is expressed in the transgenic plant and the abiotic stress is selected from the group consisting of cold, drought, salt and sucrose (claims 29 and 48). The invention is further drawn to such a transgenic plant wherein the polypeptide comprises a conserved domain with at least 76% (claim 30), 80% (claim 31), 81% (claim 32), 90% (claim 33), and 95% (claim 34) sequence identity to SEQ ID NO: 64. The invention is further drawn to such a plant, wherein the polynucleotide comprises a constitutive, inducible, or tissue-specific promoter operably linked to the nucleotide sequence (claim 35) and wherein the transgenic plant is more tolerant than the wild type plant to germination at 4°-8°C or a six hour exposure to 4°-8°C during seedling growth (claim 36) and wherein the transgenic plant is more tolerant during its germination than the wild-type plant to a medium comprising 80% Murashige-Skoog medium and 150 mM NaCl (claim 37). The invention is further drawn to such a plant wherein the transgenic plant is more tolerant during its germination than the wild-type plant to a medium comprising 80% Murashige-Skoog medium and 9.4% sucrose (claim 38). Applicant's invention is further drawn to seeds produced by such a transgenic plant (claims 39-47).

Harper et al teach a transgenic plant that has greater tolerance to abiotic stress than a wild-type plant of the same species wherein the transgenic plant comprises a polynucleotide comprising a nucleotide sequence encoding a polypeptide comprising a conserved domain identical to SEQ ID NO: 64 and wherein the polypeptide is expressed in the transgenic plant (see entire document, especially page 2, paragraphs 12, 13 and 16; Table 1, page 55, SEQ ID NO: 2316 (RAV1); page 97, claim 29; and page 98, claims 42, 44, 46, & 47). Harper et al teach such a transgenic plant wherein the abiotic stress is salt. Harper et al further teach such a transgenic plant comprising a polynucleotide encoding a polypeptide comprising a conserved domain identical to SEQ ID NO: 64 wherein the polynucleotide is operatively linked to a promoter (page 2, paragraph 16) and that the promoter can be a constitutive, tissue-specific or inducible (page 4, paragraph 25). Harper et al further teach a seed from such a transgenic plant (page 4, paragraph 25; page 23, paragraph 141; and page 98, claim 44).

Harper et al do not explicitly teach that the transgenic plant comprising SEQ ID NO: 2316 (RAV1) is more tolerant than the wild-type plant to germination at 4°-8°C or a six hour exposure to 4°-8°C during seedling growth. Neither does Harper et al explicitly teach such a transgenic plant wherein the transgenic plant is more tolerant during its germination to a medium comprising 80% Murashige-Skoog medium and 150 mM NaCl, nor wherein the transgenic plant is more tolerant during its germination than the wild-type plant to a medium comprising 80% Murashige-Skoog medium and 9.4% sucrose. Nor does Harper et al explicitly teach a seed produced by a transgenic plant with those particular limitations. However, Harper et al do indeed teach such a transgenic plant because the transgenic plant of Harper et al is exactly the same as Applicant's and thus would inherently demonstrate the increased tolerance to the various abiotic stresses recited in all of Applicant's claims.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 29-32, 35-42 and 45-47 are rejected under 35 U.S.C. 102(b) as being anticipated by Jofuku et al (US Patent No. 6,329,567) as evidenced by GenBank Database Submission AF003101.

Jofuku et al teach a transgenic plant comprising a polynucleotide which encodes a polypeptide comprising a conserved domain with at least 71% identity to SEQ ID NO: 64, i.e. a transgenic plant which expresses RAP2.8 (see entire document, especially column 18, lines 25-65; column 20, lines 10-67; Table V; and column 30, line 66). Jofuku et al teach how to make a transgenic plant comprising a polynucleotide wherein the polynucleotide encodes RAP2.8 by providing primer sequences (column 10, SEQ ID NOs: 61-62), a GenBank accession number for RAP2.8 (AF003101), and instructions for use of the sequences of the invention to enhance RAP2.8 (an AP2 domain containing protein) expression (column 18, lines 24-67). Jofuku et al teach the RAP.2 nucleotide sequence operatively linked to a constitutive promoter (column 18, lines 61-6 and column 19, lines 1-4). A copy of the GenBank entry is included in this Office Action as evidence that the submission comprises a DML domain with 81% sequence identity to SEQ ID NO: 64 (see amino acids 115-136 of AF003101). Jofuku et al also teach seeds from such a transgenic plant (see entire document, especially column 21, lines 16-56).

As noted above, the transgenic plant of Jofuku et al would inherently have all the same traits as the claimed invention because the transgenic plant of Jofuku et al expresses a polypeptide comprising RAP2.8, which comprises a conserved domain with 81% identity to SEQ ID NO: 64. Indeed, the conserved domain of the RAP2.8 taught by Jofuku et al is exactly the same as that of G9 (RAP2.8) of the instant application.

Conclusion

No claims are allowed.

Certain papers related to this application may be submitted to the Art Unit 1636 by facsimile transmission. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94

(December 28, 1993) (see 37 C.F.R. § 1.6(d)). The official fax telephone number for the Group is (571) 273-8300. Note: If Applicant *does* submit a paper by fax, the original signed copy should be retained by Applicant or Applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent applications to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at (800) 786-9199.

Any inquiry concerning rejections or objections in this communication or earlier communications from the examiner should be directed to Walter A. Schlapkohl whose telephone number is (571) 272-4439. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM. A phone message left at this number will be responded to as soon as possible (i.e., shortly after the examiner returns to his office.)

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Remy Yucel can be reached at (571) 272-0781.

Walter A. Schlapkohl, Ph.D.
Patent Examiner
Art Unit 1636

January 22, 2006

JAMES KETTER
PRIMARY EXAMINER